

IN THE CLAIMS:

1. (Previously Canceled) Isolated DNA encoding a human N-methyl-D-aspartate (NMDA) receptor subunit.

2. (Previously Canceled) DNA according to claim 1 wherein said NMDA receptor subunit is an NMDAR1 subunit.

3. (Previously Canceled) DNA according to Claim 2 wherein the nucleotides of said DNA encode the amino acid sequence of Sequence ID No. 2, 2B, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2L, 2M, 2N, or 2P.

4. (Previously Canceled) DNA according to claim 2 wherein the nucleotides of said DNA encode the amino acid sequence of Sequence ID No. 2, 2B, 2E, 2F, 2G, 2H or 2I.

5. (Previously Canceled) DNA according to claim 2 wherein the nucleotides of said DNA hybridize under high stringency conditions to any one of the sequences of Sequence ID No. 1, 1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1I, 1J, 1K, 1L, 1M, 1N, or 1P.

6. (Previously Canceled) DNA according to claim 2 wherein the nucleotides of said DNA hybridize under high stringency conditions to the sequence of Sequence ID No. 1, 1B, 1F, 1G, 1H, 1I or 1P.

7. (Previously Canceled) DNA according to claim 2 wherein the nucleotides of said DNA have substantially the same nucleotide sequence as any one of Sequence ID No. 1, 1B, 1E, 1F, 1G, 1H, 1I, 1J, 1K, 1L, 1M, 1N, or 1P.

8. (Previously Canceled) DNA according to claim 2 wherein the nucleotides of said DNA have substantially the same nucleotide sequence as Sequence ID No. 1, 1B, 1E, 1F, 1G, 1H, 1I or 1P.

9. (Previously Canceled) DNA according to claim 1 wherein said NMDA receptor subunit is an NMDAR2 subunit.

10. (Previously Canceled) DNA according to Claim 9 wherein the nucleotides of said DNA encode the amino acid sequence of Sequence ID No. 6, 6E, 6F, 6G, 6H or 6I.

11. (Previously Canceled) DNA according to claim 9 wherein the nucleotides of said DNA hybridize under high stringency conditions to any one of the sequences of Sequence ID No. 5, 5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, or 5I.

12. (Previously Canceled) DNA according to claim 9 wherein the nucleotides of said DNA have substantially the same nucleotide sequence as any one of the sequences of Sequence ID No. 5, 5E, 5F, 5G, 5H or 5I.

13. (Previously Canceled) DNA according to claim 9 wherein the nucleotides of said DNA encode the amino acid sequence of Sequence ID No. 14.

14. (Previously Canceled) DNA according to claim 9 wherein the nucleotides of said DNA hybridize under high stringency conditions to the sequence of Sequence ID No. 13.

15. (Previously Canceled) DNA according to claim 9 wherein the nucleotides of said DNA have substantially the same nucleotide sequence as Sequence ID No. 13.

16. (Previously Canceled) DNA according to claim 9 wherein the nucleotides of said DNA encode the amino acid sequence of Sequence ID No. 16.

17. (Previously Canceled) DNA according to claim 9 wherein the nucleotides of said DNA hybridize under high stringency conditions to the sequence of Sequence ID No. 15.

18. (Previously Canceled) DNA according to claim 9 wherein the nucleotides of said DNA have substantially the same nucleotide sequence as Sequence ID No. 15.

19. (Previously Canceled) DNA according to Claim 9 wherein the nucleotides of said DNA encode the amino acid sequence of Sequence ID No. 11, or the amino acid sequence of the NMDAR2A-encoding portion of clone NMDA57 (ATCC accession no. 75442).

20. (Previously Canceled) DNA according to Claim 19 wherein the nucleotides of said DNA hybridize under high stringency conditions to Sequence ID No. 10 of the NMDAR2A-encoding portion of clone NMDA57 (ATCC accession no. 75442).

21. (Previously Canceled) DNA according to claim 19 wherein the nucleotides of said DNA have substantially the same nucleotide sequence as Sequence ID No. 10 or the NMDAR2A-encoding portion of clone NMDA57 (ATCC accession no. 75442).

22. (Previously Canceled) Isolated protein encoded by the DNA of Claim 1.

23. (Previously Canceled) Nucleic acid probes comprising at least 14 contiguous bases of the DNA according to Claim 1.
24. (Previously Canceled) Isolated mRNA complementary to DNA according to Claim 1.
25. (Previously Canceled) Eukaryotic cells containing DNA according to claim 1.
26. (Previously Canceled) Eukaryotic cells expressing DNA of claim 1.
27. (Previously Canceled) Cells according to claim 26 that express functional heterologous NMDA receptors.
28. (Previously Canceled) Amphibian oocytes expressing the mRNA of Claim 24.
29. (Previously Canceled) A method for identifying DNA encoding human N-methyl-D-aspartate (NMDA) receptor protein subunit(s), said method comprising:
contacting human DNA with a probe according to Claim 23, wherein said contacting is carried out under high stringency hybridization conditions, and identifying DNA(s) which hybridize to said probe.
30. (Previously Canceled) A method for identifying compounds which bind to human N-methyl-D-aspartate (NMDA) receptors, said method comprising employing cells according to Claim 27 in a competitive binding assay.

31. (Previously Canceled) A bioassay for identifying compounds which modulate the activity of human NMDA receptors, said bioassay comprising:

- (a) exposing cells according to claim 27 to at least one compound whose ability to modulate the ion channel activity of said receptors is sought to be determined; and thereafter
- (b) monitoring said cells for changes in ion channel activity.

32. (Previously Canceled) A method for modulating the ion channel activity of human N-methyl-D-aspartate (NMDA) receptors, said method comprising:

contacting said receptor(s) with an effective amount of at least one compound identified by the bioassay of Claim 31.

33. (Previously Canceled) Agonists or antagonist for human NMDA receptor(s) identified by the method of claim 31.

34. (Previously Canceled) An antibody generated against the protein of Claim 22 or portions thereof unique to human NMDAR subunits.

35. (Previously Canceled) An antibody according to Claim 34, wherein said antibody is a monoclonal antibody.

36. (Previously Canceled) A method for modulating the ion channel activity of human N-methyl-D-aspartate (NMDA) receptor(s), said method comprising:

contacting said receptor(s) with an effective amount of the antibody of Claim 34.

37. (Previously amended) An isolated and substantially pure N-methyl-D-aspartate receptor subunit encoded by a DNA sequence comprising a sequence of as set forth in SEQ ID No. 57.

38. (Previously Canceled) A substantially pure human N-methyl-D-aspartate receptor subunit comprising the sequence of amino acids set forth in SEQ ID NO: 58.

39. (Previously Canceled) The receptor according to claim 37, where the receptor is an human N-methyl-D-aspartate receptor type 2D subunit (NMDAR2D).

40. (Previously amended) A method for detecting a binding partner for the receptor of claim 38 in a sample suspected of containing the binding partner, comprising:

- (i) contacting the sample with the receptor under conditions favoring binding of the receptor to the binding partner;
- (ii) determining presence of the binding partner in the sample by detecting binding of the receptor to the binding partner.

41. (Previously Withdrawn) A method of identifying a polypeptide which is active in a signal transduction pathway of a cell of which the receptor of claim 37 is a component, said method comprising:

- (a) contacting a cell extract suspected of containing the polypeptide with an antibody that specifically binds to the polypeptide under conditions favoring formation of an antibody/polypeptide complex,
- (b) identifying the antibody/polypeptide complex, and
- (c) assaying the complex obtained in (b) to identify any polypeptide bound to the polypeptide other than the antibody.

42. (Previously Withdrawn) A method for screening for the presence of a neurological disorder, comprising assaying a tissue from a subject to determine level of expression of the receptor according to claim 37, wherein increased or reduced level of the receptor compared to a normal level is an indication that the subject is at risk of developing the neurological disorder.

43. (Previously Withdrawn) A method for following progress of a therapeutic régime designed to alleviate a condition characterized by abnormal expression of the receptor of claim 37, comprising:

- (a) assaying a sample from a subject to determine level of a parameter selected from the group consisting of (i) a receptor encoded by the nucleotide sequence of SEQ. ID. NO. 57 and (ii) a receptor having the amino acid sequence as set forth in SEQ. ID. NO. 58, at a first time point;
- (b) assaying level of the parameter selected in (a) at a second time point and
- (c) comparing the level at the second time point to the level determined in (a) as a determination of effect of the therapeutic régime.

44. (Previously Withdrawn) A host cell transformed with a nucleic acid molecule that encodes the polypeptide of claim 37.

45. (Previously Withdrawn) An antibody that is specifically binds to the polypeptide of claims 37.